

CLAIMS

1. Device for the piece-wise or batch-wise refining of pieces of a substrate with a treatment medium under high pressure, comprising:

- 5 - a substantially cylindrical pressure vessel (1), which is provided with a closable feed aperture (4) for placing the pieces of substrate in the pressure vessel (1);
- a pipe system (7) for feeding the treatment medium to and discharging it from the pressure vessel (1) under high pressure
- 10 during treatment;

characterized in that

the cylindrical pressure vessel is provided on at least one of the two end faces with an aperture that can be closed by a lid (2, 3), which aperture forms the feed aperture (4),

- 15 in that the device comprises retaining means for keeping the lid (2, 3) in place in a sealing manner during treatment,

and in that the retaining means comprise a bounding frame (10) that is circumferentially closed, with two interconnected end pieces (11, 12) situated at a distance from each other, which end pieces in

20 a closed position can be slid over the pressure vessel (1) and thereby retain the end faces of the pressure vessel (1) in the axial direction.

2. Device according to claim 1, in which the lid (2, 3) comprises
- 25 a cylindrical wall part (15) that in a position closing the feed aperture (4) extends in the axial direction along an inner circumferential wall (16) of the pressure vessel (1),

in which at least one sealing ring (17) is provided between said cylindrical wall part (15) and the inner circumferential wall

30 (16) of the pressure vessel (1), and

in which the sealing ring (17) permits a slide of the lid (2, 3) in the axial direction relative to the inner circumferential wall (16) of the pressure vessel (1).

- 35 3. Device according to claim 1 or 2, in which the lid (2, 3) is provided with a holding part, for the purpose of removing the cylindrical wall part (15) from the pressure vessel (1) in the axial direction.

4. Device according to one of the preceding claims, in which the

bounding frame (10) comprises two straight and two arch-shaped parts.

5 5. Device according to claim 4, in which two substantially semi-cylindrical retaining pieces, which in the closed position lie between the arch-shaped parts of the bounding frame (10) and the end faces of the pressure vessel (1), are provided.

10 6. Device according to one of the preceding claims, in which the pipe system (7) opens into the lid (2, 3).

15 7. Device according to claim 6, in which a slotted opening (30) is provided in the bounding frame (10), for the accommodation in a sliding manner in said opening of the part of the pipe system (7) opening into the lid (2, 3).

20 8. Device according to one of the preceding claims, in which the two end faces of the pressure vessel (1) are provided with feed apertures (4) that are closable by lids (2, 3).

9. Device according to one of the preceding claims, in which the bounding frame (10) is made of composite material, in particular of fibre-reinforced material.

25 10. Device according to claim 9, in which the bounding frame (10) is made of wound fibre-reinforced material, in particular of wound glassfibre-reinforced plastic.

30 11. Device according to one of the preceding claims, in which the pipe system (7) connects to feed means for feeding in supercritical or near critical fluid.

12. Device for the piece-wise or batch-wise refining of pieces of textile substrate, according to one of the preceding claims.

35 13. Method for the piece-wise or batch-wise refining of pieces of a substrate with a treatment medium under high pressure with a device according to one of the preceding claims, comprising the following steps:

- 11 -

- placing one or more pieces of the substrate in the pressure vessel (1);
- closing the feed aperture by putting on the lid (2, 3);
- sliding the pressure vessel and the bounding frame (10) into
5 each other;
- feeding the treatment medium to the pressure vessel (1) at high pressure for a desired cycle time;
- after completion of the cycle time sliding the pressure vessel and the bounding frame (10) out of each other and opening the lid
10 (2, 3); and
- removing the refined substrate from the pressure vessel (1).

14. Method for the piece-wise or batch-wise refining of pieces of a textile substrate according to claim 13, comprising the step:

- 15 - placing one or more pieces of the textile substrate in the pressure vessel (1).

15. Method according to claim 13 or 14, in which the treatment medium comprises CO₂, N₂O, lower alkanes such as ethane and propane
20 and mixtures thereof, in particular in a near critical or supercritical state.

16. Use of a device according to one of claims 1-12, for the piece-wise or batch-wise refining of pieces of textile substrate.